Analyzing pork purchases at the point of sale – The role of consumer involvement

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Abstract

Involvement is an important psychological construct for understanding consumers' underlying purchase decision process and those factors that shape product perceptions. In order to better understand consumer purchase behavior for low and high priced pork cuts, a series of field interviews at a variety of food retailers were conducted with actual pork shoppers using the New Involvement Profile (NIP) developed by Jain and Srinivasan (1990). In addition to responses to a series of questions designed to assess consumers' involvement when purchasing pork, informational elements including socio-demographic information and pork attributes (e.g., origin, advertisement, on sale) were also included in the analysis. Key results from the study show individuals with high risk factors were significantly less likely to purchase high price cuts of pork. However this factor was mitigated by high price cuts on sale. Advertising is found to engage consumers with specific factors including those individuals who place a symbolic value on pork. Similar results are found for certain individuals based upon the type of store in which shopping took place. Results from our study may help companies to develop specific strategies to target high and low involved consumer segments. For instance, focusing on particular labeling schemes to increase consumers' trust in meat producers could be used to target high involved shoppers. Additionally, based upon the empirical evidence this would have an added benefit by supporting the purchase of higher priced cuts of pork.

Key words: pork, purchase behavior, consumer involvement, point of sale
JEL: C93, D12, Q13

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1. Introduction

In order to remain viable and profitable players in the food industry, producers, retailers, and marketers are continually required to adapt to both swift and slow shifts in consumer tastes and purchasing behavior. These changes, including decreased brand and store loyalty and increasing polarization of purchase behavior, is further complicated by industry shifts towards even more market concentration and competition. In this market environment, it is critical for agribusinesses to assess and understand consumers' purchase decisions for their products in order to tailor current and future products and marketing efforts. This is often done in both industry and academic settings through sensory panels, product comparison evaluations, packaging assessment panels, and surveys of consumers designed to qualify and quantify their preferences and impressions of product quality.

While these methods provide valuable information for agribusiness and serve a critical role in product development, implementation, and marketing, they do not delve sufficiently deep to understand the underlying personal factors that govern purchase decisions. That is, the individual-specific inner psychological information and decision making processes that ultimately shape quality perceptions, product preferences, and overall shopping behavior. By understanding these factors and associated consumer segments, agribusiness can better adapt to their customer tastes and tailor products and marketing efforts, i.e. act consumer-oriented. In this regard, our study contributes to the literature presenting findings from a consumer survey that takes into account not only socio-demographics, prices and shopping location but also latent variables such as consumers' perception, attitudes and involvement at the point of sale.

To that end, this study reports the results of a field interview conducted in Germany at a variety of food retailers. Pork shoppers were interviewed in-store. In order to understand the subjective impressions consumers form about the quality of pork based on psychological processes the level of consumer involvement was assessed. The concept of involvement refers to the level of "perceived personal relevance" or interest evoked by a stimulus, which the consumer links to enduring or situation-specific goals (Zaichkowsky, 1985; Mitchell, 1979). The consequences of involvement include the nature and extent of product searches, information processing and decision making

(Rothschild, 1984). To measure pork shoppers' level of involvement the New Involvement Profile (NIP) developed by Jain and Srinivasan (1990) was applied consisting of 15 statements tailored to pork attributes. An example statement evaluated by participants is: "I never know if I am making the right purchase". Each of the statements was evaluated by participants on a 5-point Likert Scale. Responses to the interview are analyzed using multivariate and econometric analysis. Regarding the NIP a principal component analysis was used to generate five unrelated, independent factors called pleasure, relevance, sign, risk importance and risk probability. These factors are incorporated with other interview responses into a multinomial logit model analyzing consumers' choice of pork cuts.

This paper contributes to the literature by including latent psychological variables in an economic field experiment. Analysis of consumers' behavior when shopping for pork has received little attention in the economic literature compared to other meats such as beef. As well, the use of involvement scales to analyze consumer behavior is an approach that yields complementary information to more traditional survey and experimental methods commonly employed in the agricultural economics literature. Given this approach and the interest in developing new marketing strategies this paper aims to close the gap between actual consumer behavior and marketing and product development. The remainder of the paper is as follows. Section 2 describes theoretical background on consumer involvement. Section 3 explains the applied methods. Section 4 presents the results and section 5 concludes.

2. Theoretical background

The concept of involvement, which has received considerable attention for products outside the agribusiness sector (e.g., see Jain and Srinivasan, 1990 for a review) refers to unobservable "state of motivation, arousal or interest". It is determined by external factors such as the shopping situation, the product, the marketing activities and internal factors such as personal values (Rothschild, 1984). In other words, it refers to the level of "perceived personal relevance" or interest evoked by a stimulus, which the consumer links to enduring or situation-specific goals (Zaichkowsky, 1985; Mitchell, 1979). The consequences of involvement include the nature and extent of product searches,

information processing and decision making (Rothschild, 1984). In more detail, involvement explains parts of the decision making process, including extensiveness of information search, length of the decision making process, formation of beliefs, attitudes, and intentions as well as behavioral outcomes such as variety-seeking behavior, brand switching, frequency of product usage and shopping enjoyment (Verbeke and Vackier, 2004). Against this background, the consumers' degree of involvement in products or issues is a major impact factor in consumer behavior (Kapferer and Laurent, 1985). This is expressed by the increasing number of studies on consumer involvement in relation to purchase decision-making, food choice and consumption patterns (e.g. Verbeke and Vackier, 2004; Kujala and Johnson, 1993).

Among others Lastovicka and Gardner (1978) refer to low-involvement cognitive structures and high-involvement cognitive structures. A low-involvement cognitive structure is supposed to be much less complex than a high-involvement cognitive structure. Mulvey et al. (1994) assume that more involved consumers have a more complex network of knowledge compared to less involved consumers. This refers to personal involvement. Moreover, they hypothesize that interrelationships differ at the attribute, consequence or value levels. For example, low-involvement consumers seem to have simple cognitive structures. They use brands as the main cues, i.e. key stimulus, to infer food quality. High-involvement consumers, in contrast, are less likely to use brands as cues for quality. This means that highly involved consumers understand quality as a multidimensional construct while low-involved consumers perceive quality as a global, abstract attribute.

A low-involvement product is defined as a product where the process of searching for information is minimal, without distinct brand loyalties. In this case, choices are based only on cost if a lower price for a competing brand is given. Low involvement is associated with routine, habitual or impulsive behavior. Consumer attitudes towards food products are usually formed beforehand. This results in a routine decision, buying food products based on prior experience and habits. Furthermore, food products are products with a low potential for social or financial risk. This could lead to the assumption that food products are low-involvement products (e.g., Beharrell and Dennison, 1995). However, there might be an exception if one thinks about (real or perceived) risk in terms

of the probability of making a wrong choice and the eventual health implications this may have for the consumer. The increasing interest in credence quality attributes such as animal welfare and healthy eating makes food products particularly interesting for studies of involvement. Such a high-involvement product leads to extensive problem-solving. In this case the consumer searches for and uses information actively. This includes careful processing of information, weighing and evaluating many product attributes before forming beliefs, developing an attitude and moving towards behavioral intention and actual or overt behavior. To sum up, the level of involvement in food shopping situations refers to the level of importance of the food on the consumers' lives. It is assumed that the level of involvement varies across individuals (Iop et al., 2006; Verbeke and Vackier, 2004).

3. Methodological background

Data were collected using standardized and questionnaire based face-to-face interviews. During the course of the interview different personal and behavioral factors were identified including shopping habits, label usage, and consumption frequency. In addition, to understand the subjective impressions consumers form about the quality of pork based on psychological processes the level of consumer involvement was assessed. Over the course of the interview each participant was asked questions on a variety of topics which are used in the analysis of shopping behavior. This includes: (1) socio-demographic information, (2) shopping environment (e.g., type of food retailer), (3) use of information regarding their current pork purchase (e.g., advertisements and labels), and (4) involvement regarding their pork purchase. To measure pork shoppers' level of involvement the New Involvement Profile (NIP) developed by Jain and Srinivasan (1990) was applied consisting of 15 statements tailored to pork attributes.

3.1. Data set

This study reports the results of a field interview conducted in Germany at a variety of food retailers including supermarkets, discounters, and hypermarkets. 372 pork shoppers were interviewed in-store. In order to avoid biased shopping behavior respondents were asked to participate in the interview only after their purchase. To interview all different kinds of customers, the survey was carried out for one week during all opening hours. As

the main target was to gather data about information used to make a purchase decision for pork, only actual customers of pork were interviewed. Interviewees were selected through non-probability convenience sampling (Malhotra, 1996). This means that respondents were pork shoppers selected on the basis of the convenience of the interviewer and asked to volunteer as a respondent. The sample covers a wide range of consumers in terms of socio-demographics and behavior, though with an over-representation of female participants (62%). Participants were on average 45 years old. The mean household size was 2.4 with 24% having children between 2 and 18 years living in the household. The average income of the sample was 1465.93 Euros and participants on average completed approximately 12 years of school (equal to higher school education without college education).

3.2. Involvement measurement – New Involvement Profile

Involvement helps in understanding and explaining consumers' depth of information processing and decision-making towards products. Beyond others, the new involvement profile (NIP) by Jain and Srinivasan (1990) has been used to measure consumers' involvement, i.e. their use of current information. The NIP is a bipolar 5-point scale containing 15 items. An applied principal component analysis (see for example Kim and Mueller, 1978; Hair et al., 1998) leads to the five dimensions: Relevance, Pleasure, Sign, Risk Importance and Risk Probability (Jain and Srinivasan, 1990). The NIP combines parts of the most important involvement measurements:

- Personal Involvement Inventory (PII) by Zaichkowsky (1994 and 1985),
- Involvement Profiles by Laurent and Kapferer (1985),
- Revision of the PII (RPII) by McQuarrie and Munson (1987),
- Involvement Instrument by Higie and Feick (1989), which includes items of Zaichkowsky's PII and McQuarries and Munson's RPII,
- FCB Grid by (Ratchford, 1987).[1]

The predominant focus of previous research on consumer involvement has been on branded products such as alarm clocks, calculators, radios and colognes. Food products in general and unprocessed products in particular have in contrast received little

[1] FCB Grid was developed for use by Foote, Cone and Belding (Ratchford, 1987).

attention in this field. Exceptions that have focused on branded food products include studies on chocolate (Jain and Srinivasan, 1990) and advertisements for ice-cream and Pepsi Cola (Zaichkowsky, 1994). The only studies that have been focused on consumer involvement for non-branded unprocessed foods are the studies by Schulz and Hamm (1997) and Verbeke and Vackier (2004). Schulz and Hamm (1997) investigated the involvement of beef consumers by means of 28 involvement related items. They distinguished between high, medium and low involvement testing the suitability of involvement measures to explain differences in individual consumer behavior. Furthermore, the study conducted by Verbeke and Vackier (2004) investigated Belgium consumers' involvement with regard to meat purchase applying the involvement profile by Laurent and Kapferer (1985). Results show that involvement can be measured with this instrument but not all original five dimensions of this involvement instrument (e.g. the perceived importance of the product; the hedonic value of the product) could be put in place for meat.

Measuring involvement uncovers the search for information and the depth of information processing. Hence, it analyses how much information is taken into account to make the pork purchase decision. To identify the impact of consumer involvement on perceived pork quality and pork purchase decision-making respectively, survey participants received questions from a 15-question item-pool on pork-related attitudes (see Table 1). The items were derived applying the NIP (Jain and Srinivasan, 1990). Each item was evaluated individually. The items were stated in a manner which took those attitude-dimensions relevant for evaluating the pork purchase into account. Included items are, for example: In purchasing it, I am certain of my choice / In purchasing it, I am uncertain of my choice; I do not find it pleasurable / I find it pleasurable; Essential / Non-Essential and Not Needed / Needed.

Responses to the interview are analyzed using econometric analysis. For the evaluation of the single items, a 5-point Likert-Scale (5 = I strongly agree, 1 = I strongly disagree) was used as the measurement instrument to gather the relevant attitudes, i.e. involvement, in a differentiated manner. Responses to the involvement questions were analyzed by means of principal component analysis with varimax as the rotational strategy to reduce the attribute space from the larger number of more or less highly

correlated variables (item pool) into a few unrelated, independent factors. The objective was the segmentation of pork shoppers according to their involvement. We generate a five factor solution for the item-pool following Jain and Srinivasan (1990). The five unrelated, independent factors are called pleasure, relevance, sign, risk importance and risk probability. These factors are incorporated with other interview responses into a multinomial logit model.

4. Empirical results

4.1. Descriptive statistics

To start with the data analysis we present the descriptive statistics for the items of the NIP (see Table 1). Results show that consumers are especially certain of their choice of pork (mean of 4.2, 5 being the maximum value). Also, they strongly agree that it is distressing to make an unsuitable pork purchase (mean of 4.4). In contrast to these factors, participants do not think that the pork purchase tells others about them (mean: 1.7) or is used to judge them (mean: 1.5). This fits the evaluation that food products are of lower value and therefore rather low involvement products in certain dimensions.

Table 1: Descriptive statistics for items of the NIP

Item	Statement (bipolar)	Mean
i1	In purchasing it, I am certain of my choice / In purchasing it, I am uncertain of my choice	4.2
i2	I never know if I am making the right purchase / I know for sure that I am making the right purchase	2.3
i3	I feel a bit at a loss in choosing it / I don't feel at a loss in choosing it	2.0
i4	I do not find it pleasurable / I find it pleasurable	1.7
i5	It's really annoying to make an unsuitable purchase / It is not annoying to make an unsuitable purchase	4.4
i6	A poor choice would not be upsetting / A poor choice would be upsetting	3.9
i7	Little to lose by choosing poorly / A lot to lose by choosing poorly	2.2
i8	Tells others about me / Doesn't tell others about me	1.7
i9	Others use to judge me / Others won't use to judge me	1.5
i10	Does not portray an image of me to others / Portrays an image of me to others	4.2
i11	Essential / Non-Essential	2.8
i12	Beneficial /Not Beneficial	3.1
i13	Not Needed / Needed	3.0
i14	Unexciting / Exciting	3.5
i15	Fun / Not fun	2.5

Source of items and statements: Jain and Srinivasan, 1990.

Table 2 presents the results of the exploratory factor analysis. Factor loadings show that in contrast to the original outcome of the NIP by Jain and Srinivasan (1990) the Cronbach's alpha is very low for the factors risk probability and pleasure. However, it is satisfying for the other three factors being on the range of 0.61 and 0.70.

Table 2: Factor loadings for involvement scale

	Risk probability	**Risk importance**	**Pleasure**	**Sign**	**Relevance**
Cronbach's alpha	0.26	0.70	0.26	0.69	0.61
i1	-0.70				
i2	0.63				
i3	0.78				
i4	0.54				
i5		-0.68			
i7		0.67			
i6			0.84		
i14			0.48		
i8				0.85	
i9				0.83	
i10				-0.70	
i11					0.78
i12					0.78
i13					-0.61
i15					0.70

The five factors were generated to measure consumer involvement. To describe them we follow the description of factors by Laurent and Kapferer (1985).

Risk Probability - The perceived probability of making a poor choice of pork.

Risk Importance - The perceived importance of negative consequences if a poor choice of pork is made.

Sign - The symbolic value attribute to pork by the purchaser of the product.

Pleasure - The hedonic value of pork.

Relevance - The perceived importance of pork.

In addition to the involvement dimensions we also include extrinsic quality cues, points of sale and socio-demographic information as independent variables in the econometric estimation. The pork cut serves as dependent variable. Table 3 provides the variable description.

Table 3: Definition of variables

Dependent Variable	**Definition**
Price level of pork cut	3 if high price pork cut, 2 if modest price pork cut, 1 if low price pork cut
Independent Variables	**Definition**
Involvement	
Relevance Sign Risk probability Pleasure Risk importance	Factor scores from the involvement scale presented in Table 2.
Extrinsic quality cues	
Sale	Interaction effects between dummy equal to 1 if purchased meat is on sale and involvement scale
Adverts	Interaction effects between dummy equal to 1 if purchased meat was advertised by means of special leaflets, brochures, radio etc. and involvement scale
Origin	Interaction effects between dummy equal to 1 if purchased meat carried an origin label and involvement scale
Point of sale	
Supermarket	Interaction effects between dummy equal to 1 if purchased at the supermarket and involvement scale
Hypermarket	Interaction effects between dummy equal to 1 if purchased at the hypermarket and involvement scale
Socio-demographics	
Education	Interaction effects between years of education and involvement scale
Female	Interaction effects between dummy equal to 1 if participant is female and involvement scale
Age	Interaction effects between age of the consumer in years and involvement scale

To be more specific following Littmann et al.'s (2006) meat cut categorization, we constructed a categorical variable (called "price level of pork cut") capturing whether or not a consumer had purchased a high-price meat cut (for example, steak and tender loin), medium price pork cut (e.g. goulash, ribs) or low price pork cut (e.g. ground pork). Under the assumption that different meat cuts tend to be associated with different usage goals (i.e., high-price cuts with special occasions). We hypothesize that the likelihood of being more involved is higher when consumers purchase higher priced meat cuts (Iop et al., 2006; Verbeke & Vackier, 2004; Zeithaml, 1988). Table 4 shows that about 50% of all purchases are of higher prices. On sale determines whether the purchased pork was on-sale (price reduced), which was applicable to 12% of the respondents pork purchases. We

hypothesize that involvement is lower in the case of a sale, because the consumer is predominantly driven by price and not other factors influencing product quality and perception. In the analysis the effect of advertisements (e.g., newspaper and in-store announcements) which may influence the state of involvement are controlled for. Across the sample, 14% of customers indicated that they were aware that the pork they purchased had been advertised. Furthermore, we account for origin labeling on the product hypothesizing that customers that pay attention towards origin information have a higher involvement. 28% of respondents stated that they had used origin labeling when making their purchase decision. 40% of the respondents had been interviewed at supermarkets and 44% at a hypermarket. The remaining 16% had been questioned at a discounter. The included socio-demographics are education, gender and age.

Table 4: Descriptive statistics

Dependent Variable	**Mean**
High price pork cut	51%
Medium price pork cut	9%
Low price pork cut	40%
Independent Variables	**Mean**
Labeling	
On Sale	12%
Adverts	14%
Origin	28%
Point of sale	
Supermarket	40%
Hypermarket	44%
Socio-demographics	
Education years of education	12
Female participant	62%
Age of the consumer in years	45

4.2. Econometric results

We estimated a multinomial logit model that incorporates the computed factor scores, extrinsic quality cues, shopping location and socio-demographics as independent variables. In Table 5 the last four columns report the estimated coefficients and standard errors for the high price pork cuts and modest price pork cuts of the multinomial logit model.

Results show that few of the factors by themselves have strong explanatory power for explaining what types of individuals purchase higher priced cuts of pork over lower priced cuts. We do find that customers with higher factor scores for Risk Importance were less likely to purchase a higher priced cut of pork. This is an interesting result in that it indicates that individuals who are more distressed when they make an unsuitable purchase are less likely to opt for a higher priced cut of pork, which is more likely per se to yield a satisfying consumption experience, because of the concern that they will not be rewarded for their higher expenditure.

Concentrating on the interaction effects between the involvement factors and the pork and shopping attributes, we find several interesting results. Whereas individuals with higher factor scores for Risk Importance were less likely to purchase higher priced cuts of pork, when the product was on sale this effect was reversed. These individuals were much more likely to purchase a medium or high priced cut of pork. This fits with intuition, that when the pork price is reduced and hence the financial cost of an unsuitable consumption experience is reduced, individuals fitting into this category are more likely to switch from a lower to a higher priced cut of pork. In this regard it is important to stress again that the categorization was made based on the cut which is naturally more or less pricey (e.g. tenderloin). However, when on sale this cut can be sold at a much lower price, which we take into account by the cut being 'on sale'. Given this result, as expected a similar effect is not found for these types of individuals when the pork is simply advertised, but not reduced in price. Interestingly, when concentrating on the Risk Probability Factor we find that individuals with higher scores are much more likely to purchase a medium priced cut of pork if it is on sale, but not relatively more likely to purchase a high priced cut of pork. Combined, the results for the risk importance and risk probability scores indicated that placing higher priced cuts of pork on sale is a successful strategy to target individuals with strong attitudes towards risk to shift their pork purchases towards higher priced cuts.

Focusing on the effect of advertising, we find that it most strongly affects those individuals with high Relevance, Sign, and Risk Probability factor levels. Individuals with higher factor scores in these three categories were more likely to purchase a high price cut of pork if it was advertised, but were not more likely to purchase a medium

priced cut of pork. In the cases of the Sign and Relevance factors, this result fits with intuition that advertising serves to signal consumers and trigger a raised awareness of the importance of high quality pork. Furthermore, the positive effect on individuals who perceive negative choices to be highly consequential, advertising appears to have some mitigating effects reducing these concerns and leading to higher priced pork cut purchases.

The resulting effects of the interaction of the involvement factors with the origin dummy variable are on the surface surprising. We find that individuals with higher factor scores for Sign are more likely to purchase a high priced cut of pork if it bears a designation of the origin of the product. This indicates that consumers place a higher symbolic value on pork conditional on knowing where it originated. This is one of the motivations by producers for labeling the origin of food products, that is, tapping into positive consumer associations between products, quality, and location. However, we find that the Risk Probability, Pleasure, and Risk Importance factors lead to a lower probability of purchasing a higher priced cut of pork when the origin is labeled. This is counter to expectations in that a second proffered feature of origin labeling is to reduce consumers concerns of both health and quality risks when purchasing food products. A priori we would have expected those individuals with higher involvement to be more likely to purchase higher priced cuts of pork if the products origin was conveyed to the purchaser.

In terms of the shopping location, we find that individuals with higher Sign and Pleasure factor scores are more likely to purchase higher priced cuts. Individuals shopping at either a supermarket or a hypermarket with a higher Sign factor score are more likely to purchase a high priced cut of pork and individuals with a higher Pleasure factor score are more likely if shopping at a supermarket. While these two results fit with intuition that shoppers who self-select to do their shopping at these types of stores, relative to shoppers at a discounter, place higher values on high quality pork attributes and ultimately reflect this in their pork selection, it is interesting that no significant effect is found for either risk factor. One could hypothesize that stores associated with better quality would reduce those concerns among individuals with high risk factor scores and

ultimately better engage them in purchasing high priced cuts of pork, but we do not find any evidence of this effect.

Finally, in terms of the socio-demographic interaction terms, we find that females and older shoppers with high Risk Importance factor scores are significantly more likely to purchase high priced cuts of pork. This indicates that females and older shoppers who are particularly sensitive to the negative consequences they associated with unsatisfactory pork choices gravitate towards high priced cuts of pork.

Table 5: Effect of involvement on pork purchase – Results from a multinomial logit

	Modest price cut			**High price cut**		
	Coef.	**Std. Err.[1]**		**Coef.**	**Std. Err.[1]**	
Relevance	4.69	6.06		0.74	1.16	
Sign	-0.45	6.69		-1.66	1.34	
Risk probability	0.90	5.91		0.86	1.11	
Pleasure	2.46	9.67		1.46	1.18	
Risk importance	-13.20	12.54		-2.53	1.31	*
On sale	-6.89	4.25		0.22	0.56	
Advertisement	0.27	1.29		-0.05	0.59	
Origin	0.80	0.81		0.87	0.39	**
Supermarket	16.05	19.93		-0.25	0.47	
Hypermarket	15.87	19.95		0.21	0.50	
Education	0.06	0.17		0.06	0.07	
Female	0.73	0.82		0.11	0.33	
Age	0.07	0.03	**	0.03	0.01	***
Sale*Relevance	-3.24	2.27		0.83	0.59	
Sale*Sign	-0.64	2.27		0.01	0.69	
Sale*Risk probability	5.29	2.54	**	0.07	0.52	
Sale*Pleasure	-1.68	1.58		0.73	0.63	
Sale*Risk importance	4.53	2.17	**	1.17	0.65	*
Adverts*Relevance	0.50	1.04		1.03	0.51	**
Adverts*Sign	1.25	1.06		1.19	0.63	*
Adverts*Risk probability	1.18	1.42		1.37	0.72	*
Adverts*Pleasure	-0.99	1.15		0.05	0.56	
Adverts*Risk importance	-1.10	0.90		-0.33	0.55	
Origin*Relevance	0.09	0.76		0.63	0.38	0.10
Origin*Sign	-0.24	0.92		0.80	0.44	*
Origin*Risk probability	1.64	0.87	*	-0.97	0.46	**
Origin*Pleasure	-0.37	0.72		-1.29	0.48	***
Origin*Risk importance	0.05	0.76		-1.30	0.46	***

Table 5 continued

	Modest price cut			High price cut		
	Coef.	**Std. Err.[1]**		**Coef.**	**Std. Err.[1]**	
Supermarket*Relevance	-2.65	5.36		-0.53	0.52	
Supermarket*Sign	-0.68	6.26		1.05	0.54	*
Supermarket*Risk probability	-5.32	5.30		0.23	0.44	
Supermarket*Pleasure	1.66	9.32		1.17	0.58	**
Supermarket*Risk importance	13.48	12.20		0.19	0.58	
Hypermarket*Relevance	-2.46	5.36		-0.33	0.56	
Hypermarket*Sign	0.56	6.24		1.30	0.57	**
Hypermarket*Risk probability	-4.86	5.29		-0.04	0.46	
Hypermarket*Pleasure	0.87	9.33		-0.81	0.55	
Hypermarket*Risk importance	12.80	12.25		-0.61	0.58	
Education*Relevance	0.01	0.17		0.00	0.08	
Education*Sign	0.12	0.14		0.09	0.07	
Education*Risk probability	0.25	0.16		-0.04	0.07	
Education*Pleasure	-0.27	0.18		-0.07	0.08	
Education*Risk importance	0.04	0.15		0.10	0.09	
Female*Relevance	0.50	0.71		0.01	0.34	
Female*Sign	-0.17	0.76		-0.43	0.36	
Female*Risk probability	-0.04	0.77		0.07	0.32	
Female*Pleasure	-0.44	0.89		0.14	0.38	
Female*Risk importance	-0.80	0.87		1.20	0.39	***
Age*Relevance	-0.05	0.02	**	-0.02	0.01	
Age*Sign	-0.02	0.03		-0.01	0.01	
Age*Risk probability	0.00	0.03		-0.02	0.01	
Age*Pleasure	0.01	0.02		-0.01	0.01	
Age*Risk importance	0.01	0.02		0.03	0.01	***
Constant	-22.69	20.06		-1.91	1.18	

[1] *** p<0.01, ** p<0.05, * p<0.1

Wald $chi^2(106)=170.55$, $Prob>chi^2=0.000$, Log pseudolikelihood=-205.61, Pseudo R2=0.29.

5. Conclusion

Involvement is considered to be an important factor influencing consumer product decisions and is a key consumer dimension that can be targeted by retailers by shaping and tailoring products and marketing campaigns. Key results from the analysis show (1) individuals with high risk factors were significantly less likely to purchase high price cuts of pork, but this effect was mitigated for pork that was on sale, (2) advertising is

successful in targeting individuals with high relevance, sign, and risk probability factor levels and (3) origin has a mixed effect in terms of the factors it targets.

One limitation of the study is that no customers from butchers are included in the sample which might lead to a sample selection bias. Furthermore, as mentioned above the Cronbach's alpha in our study is very low for the factors risk probability and pleasure. This means that, for example the number of factors could be reduced itself, e.g. combining risk probability and risk importance into one factor. Also, the 'pleasure' factor could be excluded from the analysis due to the small Cronbach's alpha.

Overall, the results indicate that in order to be successful in the market, companies could pursue specific strategies to target high and low involved consumer segments. For instance, focusing on particular labeling schemes to increase consumers' trust in meat producers could be used to target high involved shoppers. Additionally, based upon the empirical evidence this would have an added benefit by supporting the purchase of higher priced cuts of pork. These and other strategies supported by the factors identified in the study can be used to help the different actors in the food supply chain to create consumer-oriented marketing activities that are tailored individually to high and low involved consumers.

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